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BY

J. D. THOMAS, M.D.,

Professor of Genito-Urinary and Venereal Diseases,
Western Pennsylvania Medical College ; Medical
Department Western University of
Pennsylvania.

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THE MANAGEMENT OF FILIFORM STRICTURE OF THE URETHRA, WITH SOME OBSERVATIONS ON STRICTURE.*

By J. D. THOMAS, M. D.,

Professor of Genito-Urinary and Venereal Diseases, Western Pennsylvania Medical College,
Medical Department Western University of Pennsylvania.

IN order to be thoroughly understood, I premise by stating that I am in the habit of designating strictures as ones of large caliber, ones of medium caliber, ones of small caliber, ones of filiform caliber, and those that are impassable. By large caliber, I mean strictures measuring twenty-six millimetres in diameter and above; by medium caliber, those measuring fourteen millimetres and up to twenty-six millimetres; by small caliber, those measuring less than fourteen millimetres; by filiform caliber, those that will admit a filiform only; and by impassable, those demanding perineal section without a guide. As a rule, all strictures below No. 14 F. must be treated with flexible instruments.

The ideal treatment of filiform strictures is by perineal urethrotomy, for nearly all strictures of this nature are found posterior to the scrotum, and as far back as the bulbo-membranous junction. If strictures are found anterior to the region mentioned—and as a rule they are—internal urethrotomy should be practiced at the same time. These strictures can, however, be successfully treated, in the great majority of cases, without the cutting operation, and the most of them must be so treated, as patients will not always submit to the cutting operation—only as a *dernier ressort*.

I beg leave to present for your consideration and criticism two cases taken from my case book, and which will serve as types for the lines of treatment which will be advocated in this paper.

Case I.—December 11th, Mr. A., aged thirty-three years. When a boy, nine years old, had retention of urine; says meatus was cut for this trouble. He then went along without any difficulty until he was twenty-four years of age, when he received a severe and dangerous burn, but the genitals were not involved. During this time he was again taken with retention of urine, and the catheter was used every

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day, not without difficulty, however, for it was frequently followed by some bleeding. It was said that there were then strictures, and the patient has used a catheter ever since, in "order to keep the strictures open." The size of the catheter has been gradually lessened, until at present he uses the smallest (No. 5 F.) made. The frequent catheterization probably accounts for the condition found. Several days ago, when he took up his catheter, he found that half an inch of the point was missing, and he believes that it is in his urethra; notwithstanding, he is able to pass a similar instrument. On examination, under ether, I find that the circumference of the penis is two and seven eighths inches, and a No. 8 F. bulb is the largest that will enter the meatus; this passes down five inches and a half and stops. As the bulb is withdrawn, the entire canal appears to be lined with rigid irregularities. After a somewhat prolonged trial, I failed to pass even a filiform through the deepest stricture. Further attempts are discontinued to-day, as the only alternative is to enter the bladder without a guide; and, as the patient is able himself to pass a small instrument, which would serve as a guide, the operation is deferred in order to secure that assistance.

December 15th.—Before etherization the patient passed on himself his No. 5 F. flexible instrument. After anæsthesia, I cut down upon the instrument through the perinæum and came upon the lost piece of catheter, which I removed. I then passed a small director through the stricture and into the bladder and cut the urethra on this. The director was now removed and the floor of the urethra from the meatus to the opening in the perinæum cut with a Maisonneuve urethrotome; then the dilating urethrotome was passed in the same manner, opened to 28 F., and the roof of the pendulous urethra cut in its entire length. The urethra was then thoroughly irrigated and a No. 28 sound passed into the bladder. The patient left the hospital on January 1st. In the meantime a sound was passed every third day.

Case II.—Mr. B., aged thirty-six. Eight years ago had what was pronounced "catarrh of the bladder," which lasted only ten days. Four years ago had a discharge from the penis which lasted three weeks. This discharge was accompanied with ardor urinæ; there was also œdema of the penis. A few weeks after this he had retention of urine. One year later, after riding horseback, again had retention. About eight months ago had his last retention. These retentions were relieved by anodynes, poultices, and baths. On all these occasions of retention attempts were made to relieve him with instruments, but always without success. During all this time he has been troubled with frequent and difficult urinations. At the present time he is

obliged to urinate every half hour, and then the urine only dribbles away. Examination shows a penis with a circumference of three inches and an eighth. Meatus admits a 28 bulb, which stops immediately. No. 22 stops at five inches and a half. After some effort a filiform is passed through this, then over this a Thompson's (tunneled) divulsor is passed, opened up, removed, and a No. 20 sound passed into the bladder. After the operation, done in the office and without anæsthesia, the patient went to his home, ten miles out of the city. In three days he returned and stated that he felt well and was only passing his water four times a day. After this gradual dilatation was practiced until a 32 sound was passed without much difficulty. This operation was done four years ago. The patient still calls at my office occasionally to see if any recontraction is taking place. I passed a No. 32 on him on November 2, 1895, over two months ago.

These cases are sometimes treated by continuous dilatation—that is, after the filiform is passed it is tied in and is permitted to remain for twenty-four hours. By this time the margin of the stricture becomes softened and permits the introduction of a larger instrument. During the time that the instrument is *in situ* the urine is gradually drained away by capillary attraction. In this, however, we may meet with disappointment. During the period of continuous dilatation the patient is required to remain in bed. After a certain amount of dilatation is secured in this manner, the further treatment may be conducted by the usual method of gradual dilatation. At other times they are treated by passing the smallest tunneled metallic instrument over the filiform that has been previously introduced. This tunneled instrument is removed, when another a size larger takes its place. This is repeated until sufficient room is secured to pass a soft catheter that has a caliber sufficiently large to permit the urine to discharge. This catheter is usually tied in for a period, after which gradual dilatation is practiced. It often happens in these cases—the most simple ones—that, as soon as the filiform passes, it may be immediately removed and soft instruments passed in succession up to No. 8 F. at the first sitting, which leaves the stricture in condition for gradual dilatation. If a great deal of trouble is experienced in passing the filiform, it is not always good practice to follow the last suggestion, for the reason that we may fail in reintroducing the filiform.

You will observe that in Case II, after passing the filiform, I passed down over it a tunneled Thompson's divulsor, and divulsed up to No. 20 F., and immediately passed a No. 20 sound, in order to smooth out the part divulsed, after which gradual dilatation was practiced. It is to emphasize this method of treatment that I have been induced to

bring before you this subject. Lately most genito-urinary surgeons decry this method and call it unsurgical; to this I offer my earnest protest, so far as the perineal urethra is concerned. Let us first consider the method by continuous dilatation. To permit the instrument to remain, frequently causes continual pain as long as it is in the urethra, and this pain is sometimes so severe that in a short time it is forced out and the object of treatment nullified. If it does remain, it does not always act as a drain, hence some other method must be resorted to, to relieve the bladder. If it produces rigors it must be removed. It also confines the patient to bed. This last objection is not a serious one, but it is a factor.

Next, the method of passing tunneled metallic instruments, three or four in succession and in increasing sizes, at one sitting over the filiform. Where the stricture is so tight as to require this treatment, what occurs? It is probable that the first instrument with its point denudes a part of the urethra of its mucous membrane, and as the instrument is pushed forward some divulsion of the stricture takes place. Now, with the introduction of the next tunneled instrument, which is larger, a little more tearing and a little more divulsion take place, and so on to the end. This is followed by tying in a catheter, which, under the circumstances, is a dangerous proceeding. As the patient is not under an anæsthetic, the operation of repeated introduction and removal of the tunneled sound requires time, and the patient necessarily suffers much more pain than with one introduction and one divulsion. The method I advocate has been, in my hands, absolutely safe. I have performed it in my office many times, permitting the patients to go to their homes—some of them living out of the city and traveling on trains. I have several times performed it before my class at the Western Pennsylvania Medical College from among the outdoor patients, the patients immediately returning to their homes. I have never experienced any untoward results and the hæmorrhage has been insignificant. The immediate relief experienced by the patients in their ability to urinate in a good stream and without straining makes it a most satisfactory operation. After the divulsion gradual dilatation is practiced until the full caliber of the urethra is reached. I do not mean to say that very satisfactory results are not got from the other methods, for I have practiced them myself, but with the divulsion method the operation is quickly done, the relief prompt, the danger *less*, and the patient's time is conserved. In all these cases the treatment should be continued until the full caliber of the urethra is reached and a full-sized sound passed at long intervals until the tendency to recontraction ceases. You may ask, "What do I consider the full caliber of the urethra?"

I answer : That is to be determined for each patient by correct measurement. Sir Henry Thompson used to teach that if he could pass a No. 16 F. sound there was no stricture. Some will tell you that if they can pass a 26 F. sound there is no stricture. Such teaching is mere guess-work and unscientific. If I were to say that if I could pass a No. 34 F. sound there was no stricture, my teaching would be just as absurd. Dr. Otis, the elder, in order to be able to treat each patient from the standpoint of that individual, resorted to the comparison by measurement of the circumference of the urethra with the circumference of the penis. This he did in hundreds of cases, and he found that they bore a nearly fixed relation one with the other—not exactly, but near enough for the purpose of forming a working basis. After the measurements of these hundreds of cases, when he had become sure of his premises, he made the results of his labors and investigations known. He found that a penis measuring three inches in circumference gave a urethral circumferential measurement of thirty millimetres, and for every eighth of an inch difference in the circumference of the penis there was a difference of one millimetre in the circumference of the urethra. These measurements were made with the tape-line and with his urethrometer, with which you are all acquainted. Some attempt to ridicule these measurements by the statement that it would be as reasonable to estimate the caliber of the intestines by the girth of the abdomen, or the caliber of the œsophagus by the circumference of the neck. Have these comparative measurements ever been made? If not, their statement is puerile. Let me show you how ridiculous this ridicule is. We will take, for instance, two men, each six feet tall; one is lean, the other is fat. Which has the larger circumference around the abdomen? We will now measure the circumference of the penis in these men, and the probability is that we will find the larger penis on the lean man. It is a fact known to every medical man that the size of the body bears no relation to the size of the penis. I have, myself, examined hundreds of cases, with the idea of corroborating or refuting the observations of Dr. Otis, and the result has been to corroborate the measurements as laid down by him; indeed, I found a greater number of urethræ going above his mark than below. My method in examining the urethra is as follows: After passing the closed urethrometer to the bulbous portion, it is opened to the proper size as ascertained by the circumferential measurement, and gently drawn forward to the meatus. It is then gently passed back again. By this manœuvre I am informed whether it fits the urethra *comfortably* or not. If it slides to and fro too easily, I open it another millimetre, more or less, and thus get the exact caliber of each urethra. Some say if you turn

the bulb on "strongly enough," you can find a stricture in any urethra; yes, and if you turn it on still stronger, you can not budge it. But an expert would never use the instrument in that way. You may ask, "How do you provide for the normal narrowings of the urethra?" Sir Charles Bell said that a stricture was "any loss of dilatability of the urethra." Now, in bringing forward your meter at the proper size, you are able by your *tactus eruditus* to detect these points by a slight resistance, but the urethra has not lost its dilatability, and the mucous membrane gives at these points, the meatus not included, a sensation which indicates their existence, but does not prevent the bringing forward of the instrument. In scores of cases you can not detect these normal narrowings at all. If there is a stricture, the result of an inflammatory exudate, the urethrometer comes "chuck" against this, and you can not advance it, and the sensation conveyed to the hand reveals very readily the fact that there is a stricture—the dilatability is wanting. I do not open the urethrometer in the bulbous portion until a sense of fullness is experienced, as recommended by Otis, for it often happens that before this sensation is felt the meter may be opened several sizes too large. In a urethra whose caliber is 30 F. I have opened the meter in the bulbous portion to 40 F. without producing any discomfort. The normal dilatability of the bulbous portion is great as compared with the remainder of the anterior urethra, for it serves, during urination, as a governing reservoir, regulating the column of urine that passes through the urethra; on the same principle that the governor of an engine regulates the amount of steam admitted into the cylinder. When the membranous urethra opens and the powerful muscles of the bladder contract during urination, with an ordinary full bladder, an irritation of the meatus, which is the narrowest part, would be set up by the powerful stream being impinged against it; but this is avoided by the regulating function of the bulb, surrounded as it is by the strong accelerator (bulbo-cavernous) muscle, which expands and contracts—expands, yields, with the contraction of the bladder muscles and contracts with the expanding, yielding, of the bladder muscles. Hence a comparatively uniform stream passes along the penile urethra.

It has become the fad among recent authors to overdilate on over-dilatation of the strictured urethra. It appears to me that one copies from the other until it has become monotonous—a mutual admiration, as it were. But to show how they disagree among each other, allow me to make a few quotations. Hyde and Montgomery, in their *Manual*, "adopt a scale from four to eight sizes smaller" than Otis. J. William White, in his article in *Genito-Urinary Diseases* by Mor-

row, says "four millimetres lower" than Otis. Taylor, in his recent work, says: "If stricture is really present, it should be treated on the basis of the maximum caliber of the urethra being 30 F., or perhaps 32 F." Gouley says, speaking of the treatment of a case of stricture, "On the eighth day, No. 14 (No. 24 F.), which has since been introduced every fourth day." Sir Henry Thompson says: "Whatever, then, a man may tell you, and however small the stream may be, take an instrument not less than No. 8 or No. 9 (15 or 17 F.), pass it gently down the canal, and if there is a stricture the instrument will be arrested." Keyes, referring to the Otis standard, says: "That these sizes may be safely attained, the long experience of Dr. Otis proves. That they are generally necessary, I, personally, am not convinced. That they may sometimes be desirable, I believe."

It appears to me that all the authors quoted, Keyes excepted, adopt inflexible rules, relegating to no man a urethra (with some) larger in caliber than No. 17 F. or (with others) 30 F. The fact is that those who accuse Otis—who recognized no standard, but measured the urethra of every patient requiring treatment—of giving patients urethras of preconceived calibers are themselves the ones who are culpable. One author says: "Exploration of the urethra . . . should be begun by the introduction of a blunt steel sound of the largest size that will pass the meatus. As a rule, if such an instrument pass easily into the bladder, stricture is absent." Do all males have a uniform relation between the meatus and the urethra back of it? The same authority says: "The diagnosis of stricture should then be reserved for a distinct contraction of the urethra, accompanied by a gleet discharge, frequent micturition, dribbling of the urine after urination, and other symptoms of stricture." A genito-urinary surgeon ought to diagnosticate urethral stricture before such serious symptoms are experienced by the patient. Strictures are always first ones of large caliber; then, if untreated, in time become ones of small caliber. Is it not scientific, then, to treat them as soon as they become strictures? If we follow the teaching of some, we must not recognize them until they fit a sound anywhere (depending on who the doctor is) from No. 17 to No. 30 F. We all know that it is seldom necessary to pass sounds unless it is for the treatment of strictures, and it is trifling with the patient to half cure him, and he is only half cured when he is dismissed with a ring, regular or irregular, of organized or agonizing exudate surrounding his urethra, and which is four or six millimetres less in circumference than the mucous membrane behind and in front of it.

